



Memorandum

Date: July 9, 2015
To: Scot Vallee, Westfield, LLC
From: Robert Del Rio
Subject: Stevens Creek Boulevard Access Operations Analysis for the Proposed Valley Fair Mall Expansion

Introduction

Hexagon Transportation Consultants, Inc. has completed an operations analysis for the proposed expansion of Valley Fair Mall in San Jose. The analysis includes the evaluation of traffic operations and recommendations for lane configurations at the site's primary access points along Stevens Creek Boulevard, as well as an evaluation of on-site layout and circulation. The project site, known as Valley Fair Mall, is bounded by Stevens Creek Boulevard to the south, Winchester Boulevard to the west, Forest Avenue to the north, and Monroe Street to the east.

A traffic study report dated November 27, 2006 was completed and included within the approved EIR for the proposed expansion. The approved project, as evaluated in the November 2006 traffic study, consisted of the expansion of the existing mall to accommodate two new anchor stores, additional retail space, and expansion and/or relocation of out-parcel buildings. In total, the project was to result in the addition of 552,615 square feet (s.f.) of gross leasable retail space. The proposed expansion now consists of the addition of 487,300 sf of gross leasable retail space and a 10-screen movie theater. The proposed mall expansion includes the demolition of the existing three level garage along Stevens Creek and construction of a new multi-level parking garage along Stevens Creek Boulevard near Monroe Street. In addition, one level of below-grade parking also will be provided along Stevens Creek Boulevard.

The operations analysis was completed by means of a traffic simulation. The analysis includes the evaluation of intersection operations at each of the primary access points to the mall along Stevens Creek Boulevard. The adequacy of each of the access points was evaluated based on projected vehicle queues and vehicle storage capacity. Based on the analysis, necessary modifications to the planned access points to adequately serve the projected vehicle demand were identified.

Scope of Study

The objective of the operations analysis is to aid in the design of necessary lane configurations, lane storage needs, and intersection control at the primary access and on-site intersections to ensure adequate access to the site and minimal disruption to the flow of traffic along Stevens Creek Boulevard. The study area is limited to the Stevens Creek Boulevard corridor between Monroe Street and Winchester Boulevard. Traffic conditions were evaluated for project conditions during both the PM and Saturday peak hours.

Hexagon was provided a preliminary plan for the proposed project site that included the on-site roadway network layout and proposed intersection lane configurations and control. The proposed site plan indicating the primary egress and ingress points along Stevens Creek Boulevard is presented in Figure 1. Primary access to the mall will continue to be provided via the signalized access point at Santana Row/Macy's Men's and a relocated Redwood/Baywood Avenue intersection. In addition a new right-turn only driveway will be located between Monroe Street and Baywood Avenue. Figure 2 presents the proposed lane configurations at each of the access points along Stevens Creek Boulevard.

Project Conditions Traffic Volumes

Peak hour traffic volumes for project conditions were developed utilizing traffic volumes contained in the latest City of San Jose TRAFFIX database and traffic counts collected for other traffic studies recently completed in the area in 2013.

The estimated trips associated with the proposed expansion were assigned based upon the proposed project access points and location and amount of parking provided in each of the parking areas of the entire mall. The distribution of total project trips to each of the mall access points along Stevens Creek Boulevard, Monroe Street, Forest Avenue and Winchester Boulevard is consistent with that utilized in the original traffic study for the mall expansion. The project trips were added to existing and approved project traffic volumes to obtain project condition traffic volumes. The project condition traffic volumes at each of the access points along Stevens Creek Boulevard are shown graphically on Figure 3.

Though small areas of surface parking will be located along Stevens Creek Boulevard, the majority of parking along Stevens Creek Boulevard will be located within a multi-story parking garage located near Monroe Street. Figure 3 presents the primary traffic flow routes into each of the access points along Stevens Creek Boulevard. As indicated in Figure 4, the use of each of the access points will be as follows:

- The majority of project traffic originating from points east of Monroe Street will utilize the right-turn only driveway located between Monroe Street and Baywood Avenue since the parking garage is located near Monroe Street.
- The majority of project traffic originating from points west of Winchester Boulevard will utilize the Santana Row/Macy's Men's access point to access the parking garage near Monroe Street.
- As proposed, access to basement level parking will be restricted to the use of the Baywood Avenue entrance.
- Vehicles exiting from the basement level and bound for points west of Winchester Boulevard must exit near the new parking garage since right-turns from the basement level will not be possible at the Baywood Avenue access point.
- Vehicles exiting the garage and will be bound for destinations east of Monroe Street will need to utilize the Baywood Avenue entrance as it is the nearest point at which left-turns to Stevens Creek can be made.
- Vehicles bound for points west of Winchester Boulevard will have the option of using either of the project access points as each will provide right-turns out to Stevens Creek Boulevard.

Planned Roadway Improvements

Several improvements were required, as a condition of approval, for the approved expansion and are assumed to be completed as part of this analysis. The planned roadway improvements include the following:

- Widening of Stevens Creek Boulevard along its north side to accommodate right-turning traffic (into Valley Fair driveways).
- Lengthening of turn pockets along Stevens Creek Boulevard, from Winchester Boulevard to Monroe Street, by shifting of travel lanes and adjustment of medians.
- Pedestrian enhancements at the intersection of Santana Row/Stevens Creek Boulevard. The intersection will be modified to provide safer pedestrian crossing by realigning the intersection, removing exclusive right-turn lanes, and improving crosswalk treatments and pedestrian waiting areas.

Traffic Operations Analysis

Simulation Model

The operations analysis was completed with a simulation model. The model, a microscopic simulation model, allows for the analysis of roadway networks. The model is described as microscopic because it tracks individual vehicles and their reactions to each other and the roadway environment. Individual sub-segments of roadway are represented by links while activity points on the roadway are presented by nodes. Nodes are most often used to represent controlled intersections on surface street networks, merges/diverges on a roadway link, and entrances/driveways. Vehicles enter the network at entry points and leave the network at exit points. The model uses turning percentages at the internal nodes to assign turning movements.

Simulation models depict many details that cannot be represented with isolated intersection level of service calculations and queue estimates. Specifically, simulation models depict variations in vehicle and driver characteristics. The model can be used to evaluate the effects of vehicle queues spilling out of turn-pockets and blocking adjacent through lanes and queues extending through upstream intersections. As a result, the simulation is the closest possible representation of actual traffic operations on the street. Using the simulation model, potential problems concerning vehicle queue lengths can be identified and recommendations made regarding access points to the site.

Evaluation Summary

The simulation was completed for both weekday and Saturday peak hour traffic conditions. However, the analysis indicated that the Saturday peak hour traffic conditions were significantly worse than the standard weekday peak hours. Therefore, the evaluation of operations and recommendations described in this study are based on the Saturday peak hour analysis.

Figure 5 presents locations at which vehicle queues are projected to be lengthy and/or extend out of provided turn pockets based on the simulation model run. Each of the operational issues identified is discussed below:

Baywood Avenue

- Direct access to the basement level will be provided exclusively via Baywood Avenue. As such, all traffic entering and exiting the basement level must be served by the Baywood Avenue entrance.
- Two lanes are proposed to serve inbound traffic at Baywood Avenue. However, one lane will provide access to only the basement level. Thus, left-turning traffic from Stevens Creek Boulevard must position themselves in the appropriate lane of the provided dual left-turn lanes. The restricted access results in an imbalance in lane usage for the left-turn lanes from Stevens Creek Boulevard and left-turn queues that extend back through the upstream Santana Row/Macy's Men's entrance.
- Baywood Avenue will serve the majority of project traffic bound for points east of Monroe Street since it provides the nearest outbound left-turn to eastbound Stevens Creek Boulevard. The large volume of left-turns out to Stevens Creek Boulevard will result in vehicle queues that extend back from Stevens Creek Boulevard and onto the on-site roadway.

Santana Row/Macy's Men's

- Two lanes are proposed to serve inbound traffic at Santa Row/Macy's Men's. However, only one lane provides access to the new parking garage. Thus, left-turning traffic from Stevens Creek must position themselves in the appropriate lane of the provided dual left-turn lanes. The restricted access results in an imbalance in lane usage for the left-turn lanes from Stevens Creek Boulevard and left-turn queues that extend out of the provided left-turn pockets along Stevens Creek Boulevard.

Based on the findings of the simulation analysis, it is recommended that several adjustments to the proposed site access and on-site circulation plan be considered. The recommended adjustments are intended to reduce vehicle queues along Stevens Creek and along the on-site roadway as described above. The proposed adjustments are described below and presented graphically on Figure 6.

- It is recommended that direct access to the basement level from the Baywood Avenue access point be reconsidered. Preferably, access to and from the basement level should be provided on-site and not in close proximity to the Baywood Avenue access point.
- The outbound left-turn demand at the Baywood Avenue access point will require a minimum of two left-turn lanes to serve the street level (parking garage traffic). A third left-turn lane is proposed to serve only the basement level. Triple left-turn lanes are undesirable due to vehicular travel paths and likely will not be supported by the City at this location. The removal of direct access to the basement level from Baywood Avenue will alleviate the need for a third outbound left-turn lane.
- Similarly, the removal of direct access to the basement level from Baywood Avenue also will alleviate the imbalance in lane usage for left-turns from Stevens Creek Boulevard.
- Providing access to the basement level from an on-site point will allow traffic bound for the basement to utilize the Santana Row/Macy's Men's intersection and right-turn only entrance between Monroe Street and Baywood Avenue. However, left-turn queues will likely still extend out of the provided turn-pockets along Stevens Creek Boulevard. It would be expected that the use of both the Santana Row and Baywood Avenue access points would naturally be balanced and that drivers will utilize other access points to the mall rather than wait several cycles to proceed through the intersection.

On-Site Circulation Evaluation

The on-site circulation also was evaluated based upon the relation of on-site intersections and each of the primary access points to Stevens Creek Boulevard. In addition to the recommended adjustments at each of the primary access points described above, it is also recommended that turn conflicts be minimized at the on-site roadway intersection that feeds the Stevens Creek Boulevard and Baywood Avenue entrance. As described above, it is projected that the southbound left-turn movement (exiting the mall) will extend well beyond the 150 feet of storage provided within the two left-turn storage pockets. Operations at the on-site intersection will have an effect on inbound and outbound traffic flow at the Baywood Avenue entrance. Operations at the on-site intersection can be improved by restricting turn-movements and forcing drivers to utilize the Santana Row/Macy's Men's and right-turn only entrance between Monroe Street and Baywood Avenue.

Figure 1
Site Plan and Primary Access Points

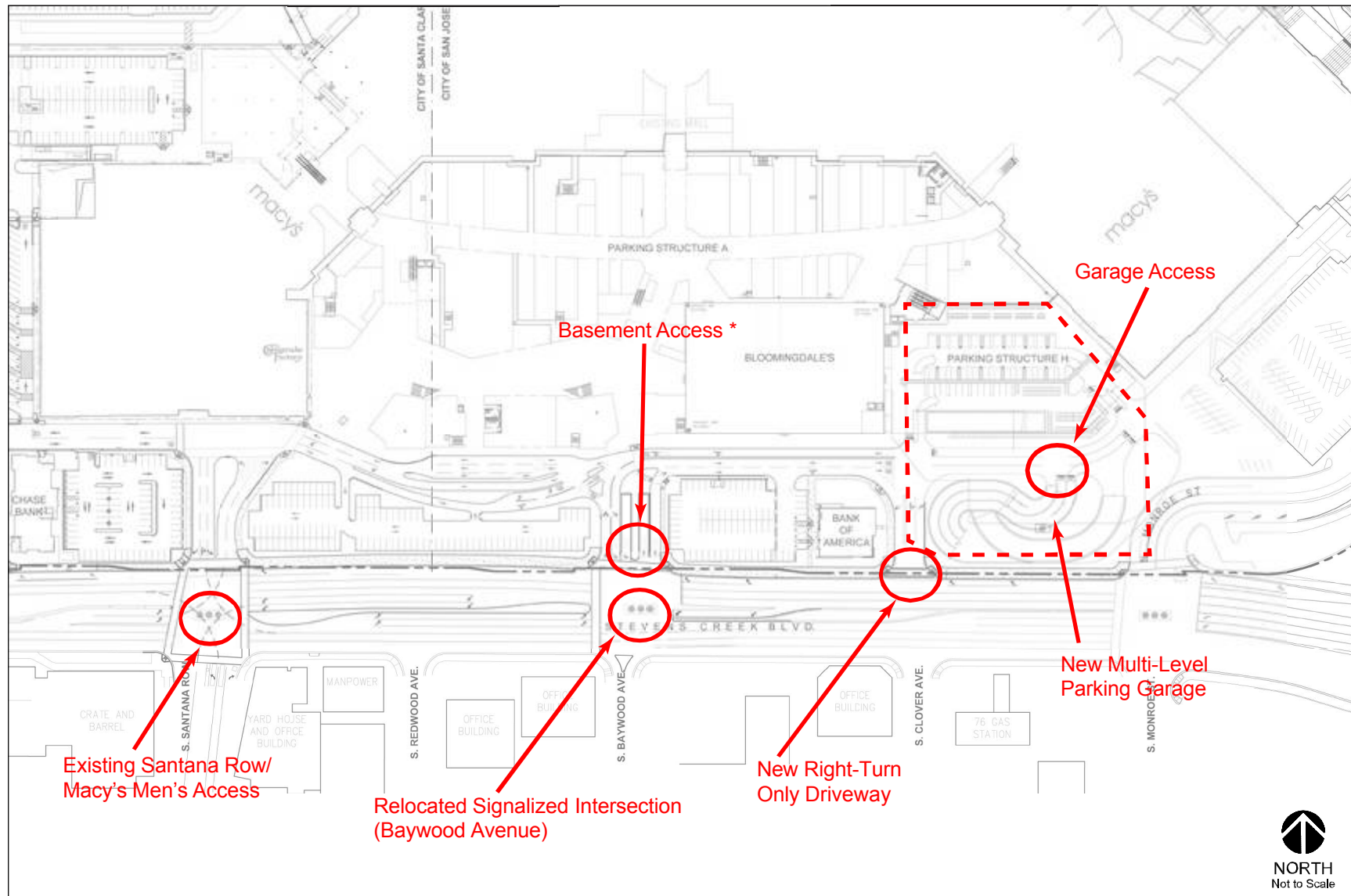


Figure 2
Proposed Access Point Lane Configurations

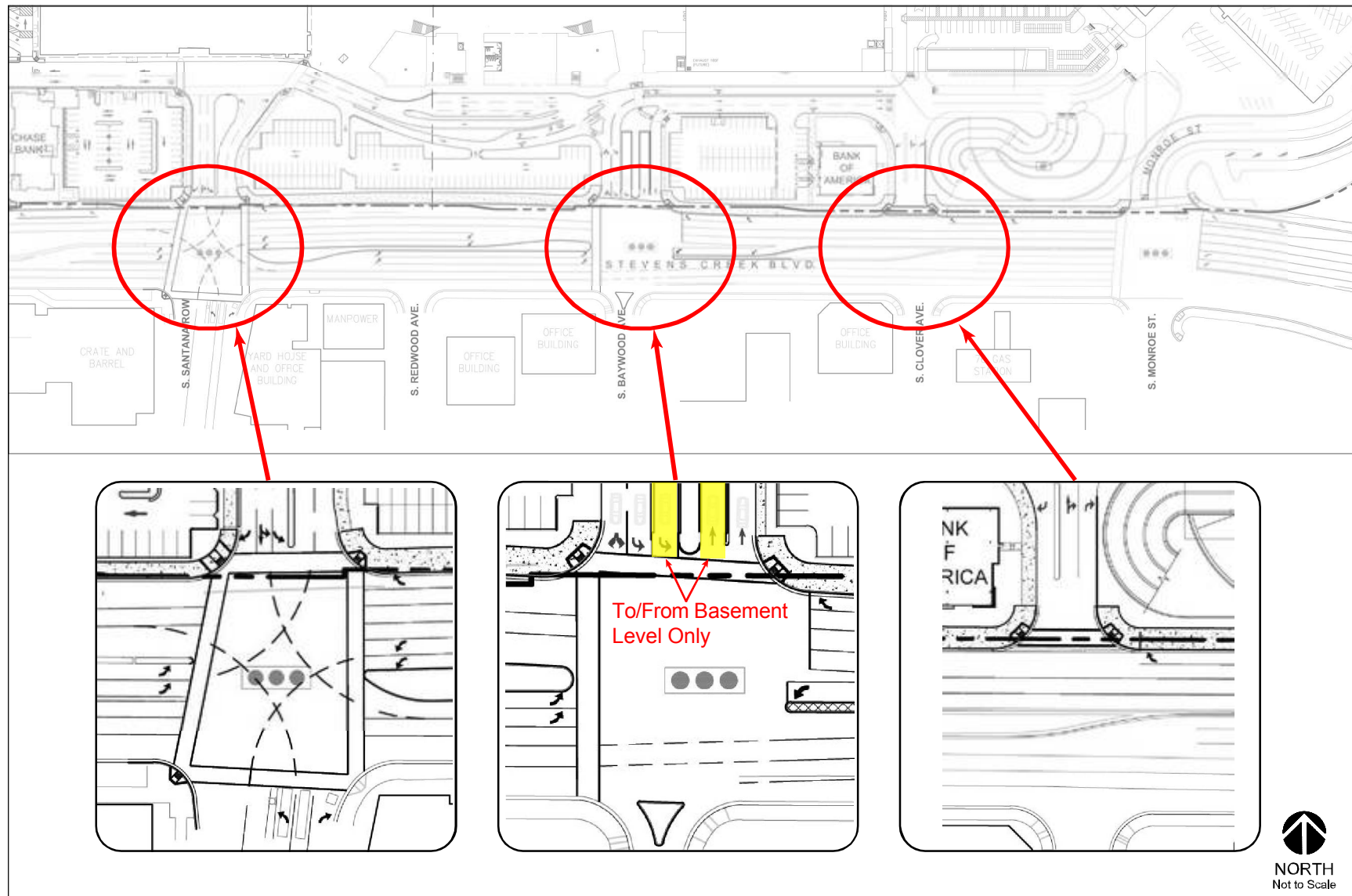


Figure 3
Peak Hour Traffic Volumes at Primary Access Points

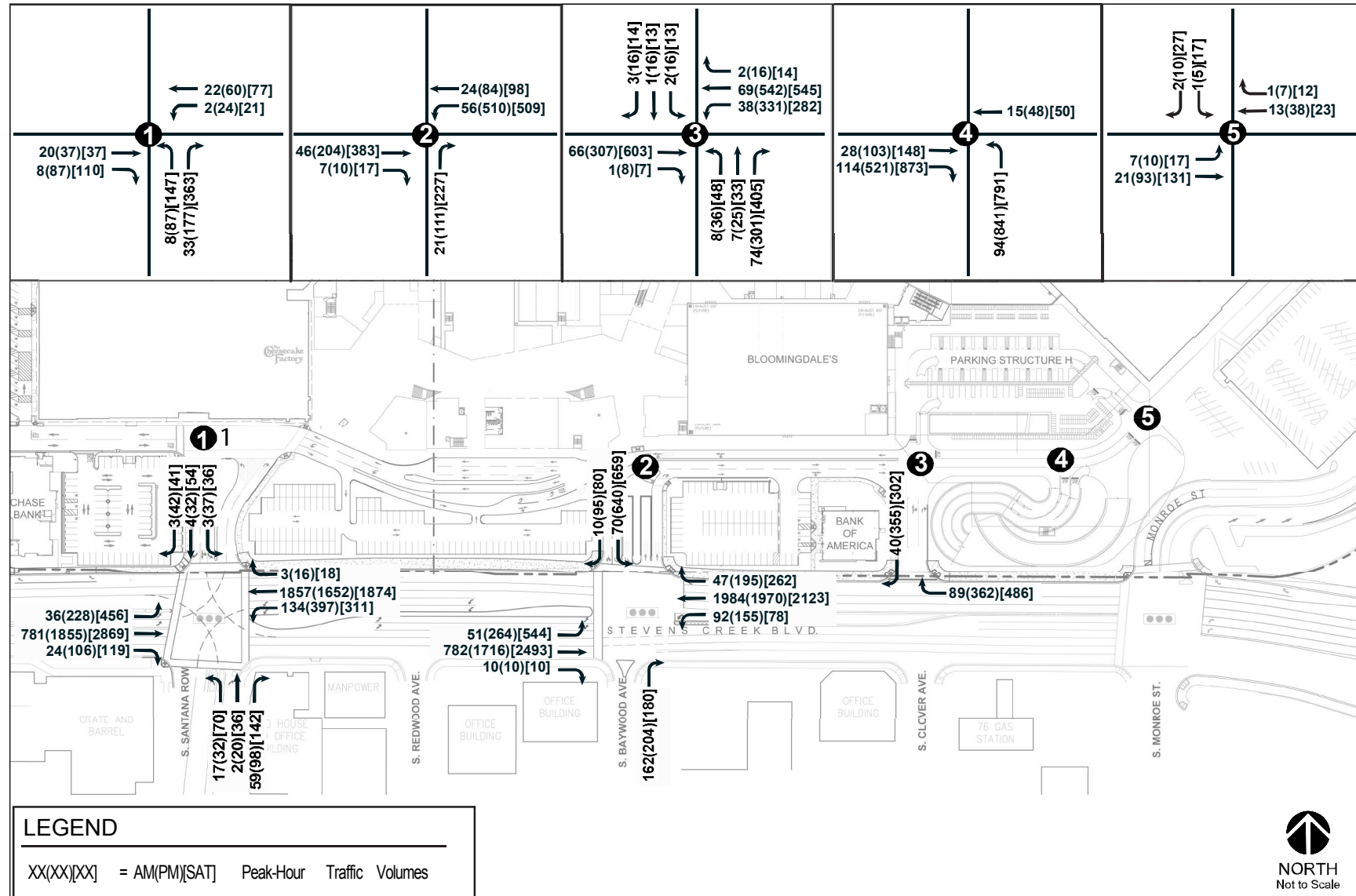


Figure 4
Inbound and Outbound Traffic Flow at Primary Access Points (Saturday Peak Hour)

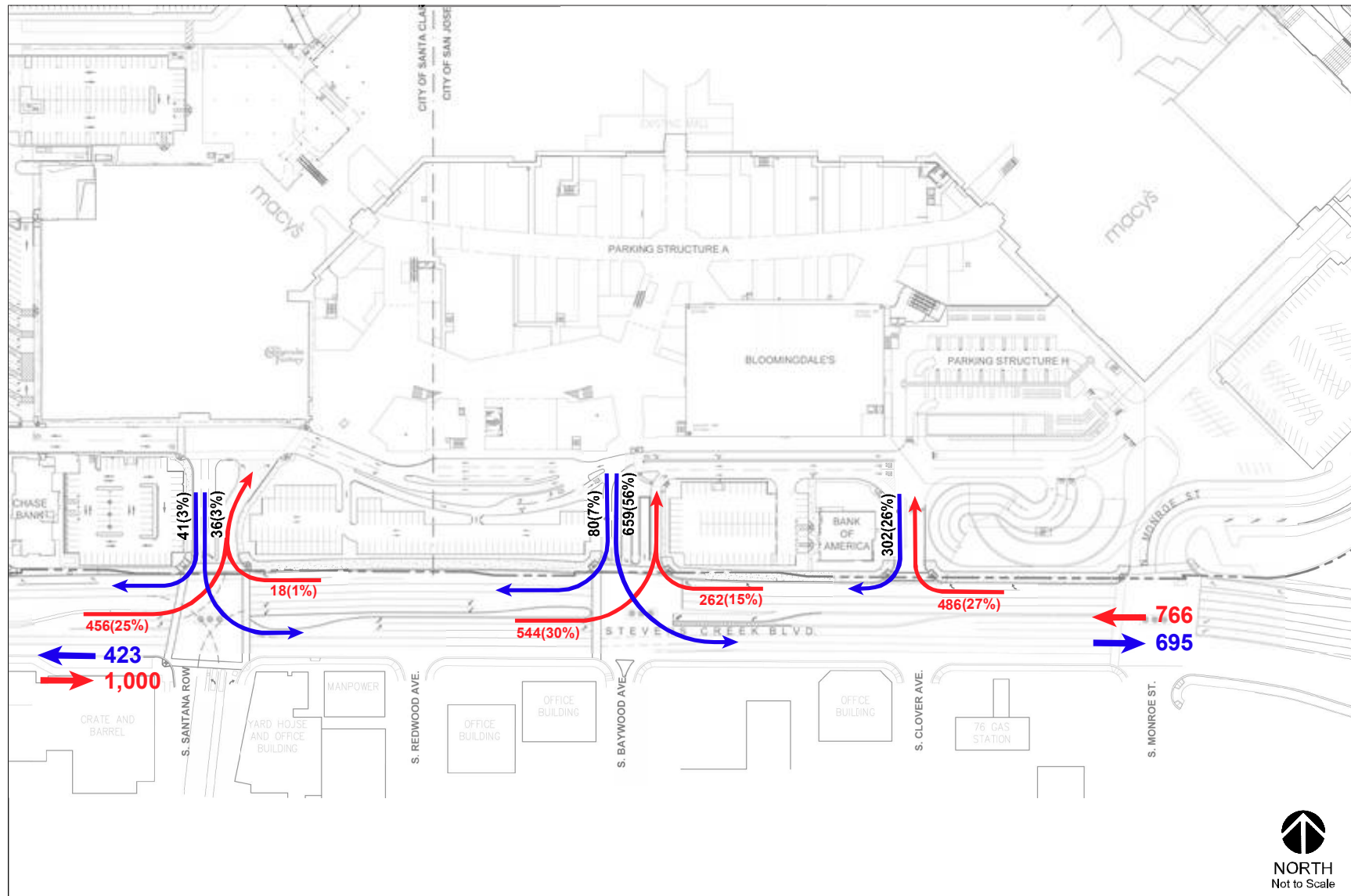


Figure 5
Vehicle Queues at Primary Access Points

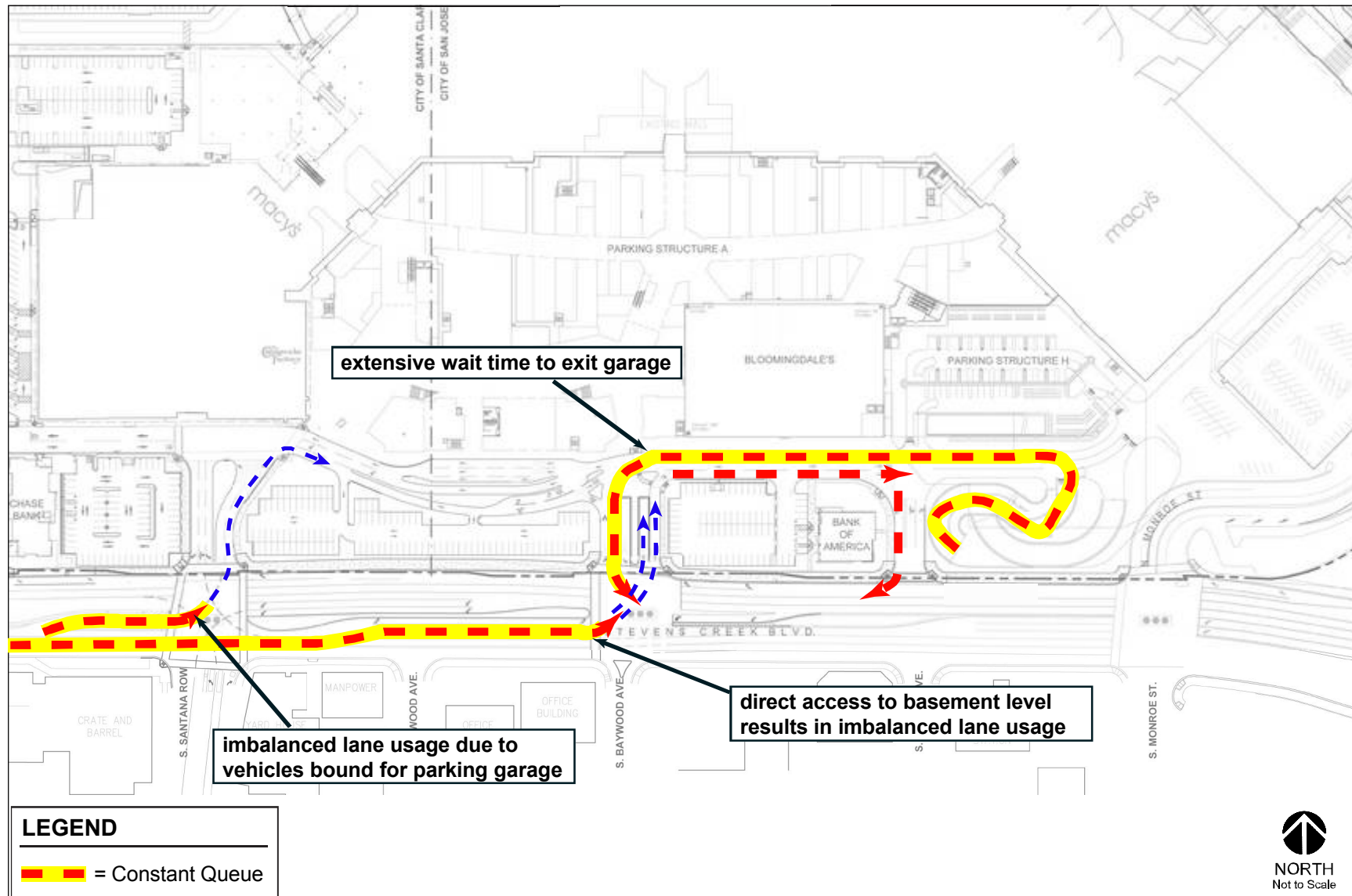


Figure 6
Recommended Adjustments at Primary Access Points

